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long time pent up in some Hollow, upon giving it Vent, it generally comes out in a pernicious Vapour.

#### EXPERIMENT XXV.

It was observed, that the greatest Shocks happened to such things as stood exposed to the *Volcano*; but that those things which were not thus exposed to it, received but faint Shocks: A manifest Sign, that the Vibration of the Air had a great Share in the Shocks of the Earth: Which Circumstance is taken Notice of by *Borelli* with respect to Mount *Ætna*.

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#### II. *An Abstract of a Letter from an English Gentleman at Naples to his Friend in London, containing an Account of the Eruption of Mount Vesuvius, May 18. and the following Days, 1737. N. S.*

S I R,      Dated *Naples, Aug. 30. 1737. N. S.*

**Y**OU have laid a very hard Task upon me, to send you an Account of the late Eruption. \*\*

I was lodged for some time at *Chaja*, and afterwards at *Fontina Medina*, in the Face of this surprising Neighbour [Mount *Vesuvius*], which from thence doth not appear to be above two or three Miles distant.

It gave us Strangers constant Entertainment, by shewing us what it could do, as well as great Satisfaction to the People of *Naples*, who, whilst it continues burning more or less without ceasing, are under

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no Apprehension (and I believe with good Reason) of an Earthquake: But we little thought of being invited to a Sight, *quod nunquam vidimus, & nunquam vidimus*; for by all the Accounts of the Living, there has not been any Eruption in their Remembrance near so violent, nor so furious; and Authors mention none to this Degree later than above One hundred Years ago. On *Friday, May 17. 1737. N. St.* I observed, as far as I could see round, that the Mountain was covered with white Ashes a great Way down, as it hath been with Snow in the Winter, which I could not find any body here or at *Barra near Portiche*, take any Notice of; though I should be apt to think for the future, that it might be a Fore-runner; for I had never seen any thing like it. *Pliny* observes in these Words, *Præcesserat per multos dies terræmotus minus formidolosus, qui Campaniæ non solum castella, verum etiam oppida vexare solitus.* (*Plin. Lib. 6. Ep. 20.*). Other Authors say the contrary; though it may very likely be so, round and near the Foot of the Mountain; but this time I have not found any body sensible of it here; but it is certainly true, that our Windows and Doors shook all the time of the Violence of the Eruption, which I take to be from the very great Concussion of the Air upon the violent Explosions: A Door which had a Latch, to my great Surprise, opened often of itself. I cannot conceive a tremulous Motion of the Earth from the Mountain hither, unless it were thoroughly cavernous from thence, which the People here deny, and particularly the Author *Paragallo*.

On *Saturday Night, (May 18.)* this great *Phænomenon* began, and increased so much on *Sunday*,  
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that it brought half the People out to gaze at it, with great Variety (no doubt) of Passions and Ratiocinations. There were certainly, amongst some, great Apprehensions, by their being imployed in Processions, visiting their Churches, and exposing their Images of the Virgin *Mary*; but I looked upon them as very ungrateful to their great Patron [St. *Jannarius*], in having any Dread, when they even boast, that he has never failed delivering them from their greatest Distresses; but by the terrible Havock I have observed in their Country, as well as what has been made by this last Eruption, I find he hath always left them in the Lurch: However, as I had not lost a Grain of the Faith I ever had in that Saint,

I very boldly set out on *Monday* about two Hours before Sun-set. It was a melancholy Sight, to see the Road full of Numbers of poor Wretches, flying as from *Sodom*. I stopped on the Way, to observe the vast Clouds of Smoak, which was thrown up in a prodigious Column, to an Height not to be guessed at, which, by its gentle Waving and Undulation, was a most beautiful Sight; and when it had mounted so high, that it had lost the Force of the Protrusion, it was carried by the Wind a vast Way; but not too far for one to observe how its Rolls began to break, and, being dispersed and expanded, covered the Country underneath with Ashes and Darknes. There were many great Flashes of Lightning darted through this Pillar of Smoak, and frequent Discharges as of Cannon or Bombs, which were followed by falling Stars, such as we see from well-made Rockets. We turned off out of *Portiche*, to gain the North-side

side of the Mountain, as far as we could, in Chaises, till we were forced to get upon Asses or Mules.

It was now growing dark, and the Fire began to be visible, which it was not in the Day-time, the Sun bearing no Rival. The prodigious *Bouillon* of Fire, and the extreme Force it was expelled with, as well as the vast Height it was carried up to, are not to be described or guessed at. If I should imagine an hundred *Stentors* or *Polyphemus*'s, with as many of *Phalaris*'s Bulls roaring all together, they could not bellow more terribly. But to have a truer Idea of this Scene, you must look into *Burnet*'s most beautiful Painting of the general Conflagration. As we looked round this Northern Side, the whole Country appeared as if over-run by *Samson*'s Foxes.

In a little time, by the Light of the Mountain, (though that was much obscured by the Clouds and Pillar of Smoak) and the Help of our Torches, we scrambled over very rough Roads, till we got within about a quarter of a Mile of the great *Lava* or Current: But then I ordered an Halt; for indeed the Scene on all Sides became so stupendous and terrible, that I thought I should make a very foolish Figure, if any Misfortune should happen to us.

We returned to *Portiche*, where we supped, and got home, much fatigued, by Two in the Morning. The Fury of this Eruption was at its Height this Night, as to burning; but the next Day (*Tuesday*) the Columns and *Bouillons* of Smoak were as great, and thrown out with as much Violence, which, as the Wind far, carried its Destruction, not of the large massy metallic Bodies, but of infinite Quantities of Ashes and Cinders, all that Day, and Part of the Night.

Through the Columns of Smoak was a continued Lightning, the most beautiful Sight imaginable.

The following Day (*Wednesday*) we set out again to view the West-side of the Mountain at *Torre del Grejo*, Eight Miles from hence; where we heard, that the great *Lava* had stopped at the Church of the *Carmelites*, but not without carrying Part of it away: Yet the People were superstitious enough to think this Stop miraculous; though it made a great Breach on one Side, broke down and quite demolished their Sacristy, besides cracking the Roof. This *Lava* had from the Declivity taken the Water-course, which was the Preservation of the Country from being drowned (and the People had best look to themselves, unless they make another). This Hollow, which was for some Miles between Thirty and Forty Feet deep, and as many wide, was not only filled up, but the Matter rose as many Feet above the Surface of the Land about it: We walked to view it on one Side, but the Heat was so intense, and the sulphureous Stench so suffocating, that we were obliged to keep at a good Distance; and I was well informed by several, that it continued very hot a Month or five Weeks after; so long in cooling is that great Quantity of bituminous and metallic Matter, with which this *Vome*s is loaded.

As the Fury of the Expulsion and Explosion was much abated on *Tuesday* Morning, the Stop here was about Four o'Clock that Day in the Afternoon; which might be the more easily conceived, when no more of this vast metallic Matter was discharged, and the Motion of all the rest was relented, for want of more Protrusion, and the Bitumen growing a little cooler.

cooler. As this Stop was made at the Church, Part of the *Lava* took a Turn into the great large Road to *Salerno*, to a great Height ; which Part is choaked up for ever; the Expence being immense to remove it. *N. B. Giulio Cesare Reputio*, one of the Authors who describes the Eruption in 1631. says, one of the maffy metallic Bodies was in his Time weighed, and the Weight amounted to Five hundred *Cantaras*, a *Cantara* being nearly Two hundred Weight. They have since made the Road passable, by laying Earth upon the *Lava*, and so have added to the Hills of their Country. There are some who pretend to say, that the Matter discharged this time in the different Currents or *Lava's* round about, would make a Mountain as big as their Sire. The *Carmelites* here soon fled, and were not come back ten Days afterwards, when we returned that Way, to visit the South-east Side, to view the great Devastation which was made about *Ottajano*, eighteen Miles from hence ; for though the great Discharge of the metallic Body ceased on *Tuesday*, (*N. B.* they did not let their Patron budge till the next Morning) a vast Destruction of the Country followed for a long time after ; for as the Force of the Explosion was very great, it continued to throw out vast Showers of Cinders and Ashes. The Lands indeed, where the *Lava's* fall, are annihilated to the Owners ; but the other Materials destroy all the Fruit and Produce of the Earth where they fall, which doth not recover for a long time ; and in this unhappy District, his Majesty hath, with great Goodness, taken off all Taxes for Ten Years.

As we turned on the Left from *Torre del Grejo* towards *Ottajano*, we passed all the Way through their *Masserias* [Farms]; and the Mountain, having the Weather-gage of us for three or four Miles, rained Ashes plentifully upon us, and we lost our Smell of every thing but Brimstone. All the Trees, Vines; and Hedges, bent under the Weight of these Ashes, several Arms, and even Bodies of Trees, were broken with the Weight; so that in some narrow Roads we had Difficulty to pass. Within a Mile or two of the Prince of *Ottajano's* Palace (a very honest worthy Gentleman, who has suffered a Loss of above 100,000 Ducats, or 50,000 *l.* some say more) one can scarce frame to one's self a Sight of greater Desolation; Ten successive Northern Winters could not have left it in a worse Condition: Not a Leaf on a Tree, Vine, or Hedge, to be seen all the Way we went, and some Miles farther, as we were informed: Here, and at the Town, they had a new Earth, about two Feet deep, some said more, by the Account of the miserable Inhabitants, who were a dismal Spectacle, though they had recovered their Fright, and seemed to be got into a new Heaven. The Storm fell so thick and heavy for that time, that they almost all fled, and many Houses were beaten down. In one Convent, two or three Nuns were buried in the Ruins. At *Somma*, on the North-east Side, it has made great Havock; a Monastery of Nuns was destroyed. After a long Day's Work, we returned at Six o'Clock.

Thus, Sir, I have given you our Journal, and an Account of what I observed of this *Monstrum horrendum ingens!* I fear you expect some Reflections upon the  
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the *Phænomena*: A few Thoughts, though very common ones, I offer for your Correction.

The Earth of this Country is, no doubt, greatly compounded of Sulphur and Nitre, from whence Dr. *Burnet* hath fixed it for the Beginning of the general Conflagration; though he has, out of a particular Spite to the People of *Rome*, laid the Commencement of it there. The great Quantities of Sulphur and Nitre are, to be sure, the Operators of these great Explosions, Lightnings, Bombs, Bellowings, and Expulsions of all this Matter; and Nature can certainly make much stronger and more elastic Gunpowder, than Mankind; else those great massy Bodies of Metals could not be thrown up with that vast Force, to that great Height. The Bodies are compounded of various Metals, and, as it were, incorporated with the Bitumen: They pretend to find some Silver, but I question whether the Gains will pay the Costs. They have spoken of the *Lava's*, as if their Motion was quick; but I observed otherwise, that it is slow, and the Progression rather like a vermicular one: And besides trusting to my Sight, I am rather apt to think it must be so, because, though in a great Declivity, these great Masses must be much retarded in their Motion, by their large unequal Points or Angles; besides, the Glewyness of the Bitumen as it cooled, would very much impede a quick Motion; which Bitumen is that Matter that flames, smokes, and is so very suffocating.

By some of the Antients, these burning Mountains have been looked upon as Divinities, and that they lived there: To confirm which, there was a Marble found at *Capua* (as *Paragallo* affirms) with this Inscription,

scription, *Jovi Vesuvio sacrum D. D.* The Greeks made use of them in their Mythology, by clapping the Rebel Giants under them.

I must not conclude without saying something of the *Mofete*, upon which much hath been written, particularly by *Leonardo de Capua*; but all might be reduced into a narrow Compass. I mention it now, because it hath given great Terror to the Neighbourhood of this Mountain; Four or Five Persons near *Torre del Grejo*, *Portiche*, and some other Place, having been killed by going into their Caves or Cellars: And it is particularly remarked to have been thus destructive all round the Hill, after the great Eruptions; upon which the great Agitation and Rarefaction of this inflammable Earth, composed of such active Particles, even *Sal Ammoniac*, must send out vast and strong *Effluvia*, (or what in such close Places may properly be termed Exudations) pernicious, no doubt, when confined under Ground, and hindered from expanding and mixing with fresh Air: And, no doubt, all round the Mountain they abound; but the open Air is a Specific against their ill Effects; as we see it is an immediate Cure to the poor Dog at the *Grotto del Cane*, and not any particular Quality of the neighbouring Lake, which Throwing him into, I should rather think, would kill him, till he had recovered his Respiration and Spirits. *Virgil, Æn.* VII. 84. mentions these Damps:

——— *Nemorum quæ maxima sacro*

*Fonte sonat, sævamque exhalat opaca mephitim.*

And to these Stenches *Persius*, Satire III. l. 99. resembles the Scent of a stinking Breath:

*Gutturæ sulphureas lente exhalante mephites.*

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The following Authors have given very ample Accounts of the Eruption of Mount *Vesuvius*, on Dec. 16. 1631.

*Giulio Cesare Braccini*; Dell' Incendio fattosi nel *Vesuvio*, a 16 Dec. 1631. *Neapoli*, 1632. 4<sup>to</sup>.

Don *Juan de Quinones*; El Monte *Vesuvio*, *Madrid*. 1632. 4<sup>to</sup>.

*Julius Caesar Recupitus*; de Incendio *Vesuviano* Nuncius, *Neapol*. 1632-3. 8<sup>vo</sup>.

*Joh. Bapt. Musculus*; de Incendio *Vesuvii*. *Neapol*. 1633. 4<sup>to</sup>.

*Gaspar Paragallo*; Ragionamento de' *Tremuoti*. *Napoli*, 1689. 4<sup>to</sup>.

III. *De Atmosphæra Lunari, Dissertatio Astronomica.* Auctore D<sup>no</sup> Johanne Paulo Grandjean de Fouchy, in *suprema Galliæ Rationum Curia Senatore, & Reg. Scient. Acad. Paris. Socio.*

**C**ELEBERRIMA est apud astronomiæ physicæ cultores de atmosphæaræ lunaris existentia quæstio. Multi, iique præstantissimi viri, ipsam diversis rationibus physicis solvendam, sed vanis hucusque conatibus, susceperunt. Tot igitur & tantorum artificum irritis laboribus edoctus, aliam mihi viam tenendam statui; ipsiusque atmosphæaræ lunaris existentiam ex meris observationibus inquirendam judicavi, non quidem ex ipsius atmosphæaræ corporis directo intuitu, quippe quod oculorum aciem facillime effugere posset, sed ex phænomenis ipsius existentiam necessario comitantibus, puta refractione radiorum ipsam, luna pleno